



FCC IWG-**NINE!**
WRC-99

Meeting Notice and Draft Agenda

The seventh meeting of FCC's informal working group **NINE!** on Regulatory/Procedural Matters will convene at 9:30 a.m., Thursday, December 3rd in Room 847, 2000 M Street, NW, Washington, DC.

The draft agenda:

1. Approval of agenda
2. Introductions
3. Earth stations on board vessels PT1 Doc 65R2
4. Res 128 Radio Astronomy
5. Other business

Mark your calendars. Subsequent meetings of **NINE!** are:

12/3	1/7/99	2/4	3/4	4/1 (Honest!)
5/6	6/3	7/1	8/5	7/2

at 9:30 a.m., above room.

• For reasons of economy, these documents are printed in a limited number of copies. Participants are therefore kindly asked •
to bring their copies to the meeting since no others can be made available.



Subject: Initial considerations on the regulatory aspects of
WRC-2000 Agenda Item 1.8 (Earth stations on board vessels at 6/4 GHz)

Origin: PT1

Date: 6 November 1998

This document attempts to list the issues which would need to be reviewed concerning the regulatory aspects of WRC-2000 Agenda Item 1.8 and should in no way be interpreted as a general support for this concept. However, it provides initial elements for the discussion of these issues.

1. Type of service corresponding to the proposed application

The distinction made by the RR is that an earth station transmitting while in motion is within the Mobile Satellite Service. This would be the case for a ship, while an oil rig for example, would clearly be in the FSS.

To avoid unnecessary complexities, it would be preferable that the same rules be applicable to such ship earth stations, whether they are operating in international waters or not, or whether they are transmitting while in motion or not. This would avoid, in particular, to include in the Radio regulations new definitions with respect to the concept of international waters, territorial waters, economical zones...

2. Status of the service

Introducing the MSS as a primary service without restrictions would mean that the coordination procedure of **S9.17** and **S9.18** have to be applied between ship earth stations and terrestrial stations (See Section 3).

Introducing the MSS as a secondary service would mean that this type of application would be secondary to the FSS, which is probably not necessary.

Introducing the MSS as a primary service with a footnote in Article **S5** reducing the status of this service with respect to terrestrial services is another possibility which would avoid this difficulty. Such a footnote could be worded in the following way: "This frequency allocation may also be used by earth stations on-board vessels, under the conditions specified in the procedures of Resolution xxx." Possible elements for such a resolution are provided in Section 6.

3. Coordination

Coordination procedures between earth stations and terrestrial stations are applicable between the administrations on the territory of which these stations are located. If the earth station is in the international waters, the current procedures cannot be applied.

The space coordination procedures provide, however, an example of procedures applicable to radiocommunication stations which are located in a domain which does not belong to any country in particular. In this case, **S9.11** and **S9.14** (coordination between a transmit space station and the administrations having terrestrial stations that could be affected) may provide an example of a procedure between one administration having a station located in an "international" domain, and an administration having a station in its territory.

The difficulty with such a coordination procedure is that they would clearly restrict the development of terrestrial service by enabling a mobile ship station to claim protection from terrestrial stations.

4. Limits

As for **S9.11** and **S9.14**, the application of a coordination procedure on a first-come-first-served basis entails the loss of sovereign rights in many respects for the administration intending to use terrestrial services.

The use of limits provides in this case a preferable alternative. If the ITU-R studies indicate that beyond a minimum distance of x (km), there is no risk of unacceptable interference from a ship earth station, allowing the use of such earth stations beyond this distance from costs would ensure coexistence of both services without the need for coordination.

As for most hard limits in the Radio Regulations, it would be possible to exceed this limit provided that prior agreement has been obtained from the concerned administration.

5. Application of Article S18

Whatever method is used (limits or coordination), a difficulty exists in respect of the possibility for an administration licensing such an earth station to ensure, in the event of the occurrence of harmful interference to a terrestrial station operated in accordance with the Radio Regulations, that this harmful interference will be stopped. This possibility is key to any administration to fulfil its obligations under Article **S18**.

For a transmit space station, the location of the satellite system control centre on the territory of the notifying administration ensures that the interference can be stopped within a reasonable amount of time. In the case of a ship earth station, this may take a much longer time, unless the earth station can be deactivated by the control centre of the satellite with which it is operated. This points out to the fact that a preferable option for licensing such earth stations might be through the space station notifying administration.

In this case, the ship earth station should be equipped with a device that permits the satellite communication system control centre to determine its geographical positions and to switch it off immediately in case harmful interference into a terrestrial station occurs.

Alternatively, the flag administration could license the ship earth station if it can remotely perform the same functions.

6. Resolution

In Section 1, the possibility of a Resolution is suggested. In view of the above, this resolution would have to specify :

- That this application shall not cause harmful interference to not claim protection from terrestrial radiocommunication stations operated in accordance with the Radio Regulations in this frequency band;
- That this application is limited to a minimum distance of x (km) from the coasts, unless prior agreement has been obtained from the concerned administrations.
- That such ship earth stations shall be equipped with a device that enables the administration licensing this station under the provisions of Article **S18** to perform:
 - a) The position determination of this earth station;
 - b) The remote switching off of its transmissions immediately upon request by an administration which services may be affected.

UNITED STATES OF AMERICA

PROPOSAL FOR THE WORK OF THE CONFERENCE

2000 WORLD RADIOCOMMUNICATION CONFERENCE PREPARATION	IWG9/28 Rev. 2 DATE: December 3, 1998
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Proposal for Agenda Item 1.8

to consider regulatory and technical provisions to enable earth stations located on board vessels to operate in the fixed-satellite service (FSS) networks in the band 3 700 - 4 200 MHz and 5 925 – 6 425 MHz, including their coordination with other services allocated in these bands.

Background Information:

Global wide-band communication with vessels is possible by using existing satellite transponders of the fixed-satellite service (FSS) and satellite tracking earth stations mounted on stabilized platforms which compensate for the pitch and roll of a moving vessel. Fixed-satellite service communications in the 3 700-4 200 MHz and 5 925-6 425 MHz bands can provide global coverage without resorting to multiple spot beams that are necessary at higher frequencies. This means of communication is currently being provided on an experimental basis to ships and other vessels using FSS transponders operating in the bands 3 700-4 200 MHz and 5 925-6 425 MHz in all three ITU Regions. To achieve the primary service status of the FSS as specified in this agenda item, technical and regulatory provisions are necessary to provide for coordination of their use with other FSS use and with the fixed service (FS). Technical preparation of this item was assigned to ITU-R WP 4-9S.

There are three phases of operations to consider for the needed provisions: (i) when the vessel is stationary (*e.g.*, tied to a pier, or moored at a fixed spot in the ocean); (ii) when the vessel is in motion on the high seas; and (iii) when the vessel is in motion within the coordination distance for terrestrial microwave.

Below is text for a two-part procedural approach providing the regulatory and technical basis for WRC-2000 Agenda item 1.8. Part (A) is a footnote to modify the Table of Allocations for the bands 3 700 - 4 200 MHz and 5 925-6 425 MHz. Part (B) is a draft resolution which sets forth the terms and conditions of use.

Proposal:

(A) Modification to the Table of Allocations

MOD

Allocation to Services		
Region 1	Region 2	Region 3
3 600-4 200 MHz	3 700-4 200 MHz	
FIXED	FIXED	
FIXED-SATELLITE(space-to-Earth) ADD USA//1	FIXED-SATELLITE (space-to-earth) ADD USA//1	
Mobile	Mobile except aeronautical mobile	
5 925-6 700 MHz		
FIXED		
FIXED-SATELLITE (Earth-to-space) ADD USA//1		
MOBILE		

Reason: To establish regulatory and technical provisions for operations of earth stations on board vessels in the fixed-satellite service.

ADD:USA//1:

S5.ESV The regulatory and technical provisions to enable earth stations located on board vessels to operate in fixed-satellite service (FSS) networks in the bands 3700-4200 MHz and 5925-6425 MHz, including their coordination with other services allocated in these bands, are in Resolution ESV (WRC-2000).

(B) Draft Resolution

Draft Resolution ESV (WRC-2000)

Technical and Regulatory Provisions for the Use of Earth Stations in the Fixed-Satellite Service Located on Board Vessels in the Bands 3 700-4 200 MHz and 5 925-6 425 MHz

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that the technology exists to permit the operation of earth stations on board vessels (ESV) in the FSS in the bands 3 700-4 200 MHz (space-to-Earth), and 5 925-6 425 MHz (Earth-to-space);
- b) that developmental operations on board vessels using such terminals and operating in the FSS networks have been conducted successfully for several years;
- c) that when such an FSS earth station of one Administration is in or near the territory of another Administration in which there are FS stations or other co-primary services coordination may be necessary;
- d) that the coordination situations for such vessels include operations:
 - (i) a certain distance from the nearest point of land beyond which no coordination is necessary;
 - (ii) stationary (in port or moored);
 - (iii) in motion within the distance in (i) from the nearest point of land;
- e) that methods exist for addressing the coordination situations in d) above,

resolves

- 1. that an earth station on board a vessel (ESV) may operate as a station in the fixed-satellite service while receiving in the 3 700-4 200 MHz band and transmitting in the 5 925-6 425 MHz band;
- 2. that operation of ESV terminals which are [XXX] km and beyond require no coordination;
- 3. that when earth stations on board vessels (ESVs) are operating in or near a port, either at a fixed position or while in motion, using the bands 3 700-4 200 MHz (space-to-Earth) and 5 925-6 425 (Earth-to-space) of the Fixed-Satellite Service, they will do so under appropriately authorized and frequency coordinated conditions as follows:
 - (a) the authority over operations on radio frequencies within XXX km of a territory while in or near a port belongs with the Administration of that territory where the port is located; however, the responsibility for the ESV lies with the Administration that initially authorized the use of the ESV;
 - (b) the responsibility for ensuring that unacceptable interference is not caused to other services in the band belongs to the Administration that authorized the use of the ESV in these bands;
 - (c) it is expected that in each port where ESVs will be operating in the FSS in these bands:

- (i) a set of frequencies will be established for such use that have been coordinated with all other co-primary users;
 - (ii) this spectrum will not include the entire allocation in these bands;
 - (iii) coordination will be accomplished between the Administration(s) with authority over the terrestrial services operating in these bands in or near that port and the Administration that authorized the ESV to operate in these bands;
 - (iv) upon completion of such coordination, the ESV will be authorized to operate in the FSS in these bands in or near the port;
 - (d) a list of the ESVs authorized to operate in and near a particular port and the frequencies and associated operational conditions¹ which have been coordinated in that port will be established and maintained by the Administration responsible for that port and such list shall include a point of contact for obtaining this information;
 - (e) ESV operators must comply with the conditions established by the authorizing Administration(s);
4. that coordination of in-motion ESV terminals within [XXX] km of territories shall be accomplished using the provisions of Annex 2 to this Resolution.

¹ Including such parameters as range of the visible geo-stationary arc, minimum elevation angle, maximum transmit e.i.r.p., etc.